

| <b>Standard BAL-001-TRE-1 (Regional Variance)<br/>First Posting Version</b>   | <b>Comment</b>   | <b>Proposed Standard BAL-001-TRE-1<br/>Second Posting Version</b>  |
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| <b>2. Number:</b> BAL-001-TRE-1 (Regional Variance)   | Removed (Regional Variance) from Number. Including “TRE” in number indicates that it is a regional standard.   | <b>2. Number:</b> BAL-001-TRE-1  |
| <p><b>Glossary Definition</b></p> <p><b>Controllable Load Resource:</b> Load resource capable of providing Regulation Service by controllably reducing or increasing consumption under dispatch control (similar to Automated Generation Control) and that immediately responds proportionally to frequency changes (similar to generator governor action).</p> <p><b>Emergency Interruptible Load Service (EILS):</b> A special emergency service used during an Electrical Emergency Alert to reduce Load and assist in maintaining or restoring ERCOT System frequency.</p> <p><b>Frequency Responsive Resource:</b> Facility capable of providing electrical energy or Load capable of reducing or increasing the need for electrical energy or providing Ancillary Services (as defined in the current ERCOT Protocols) to the ERCOT System, excluding Underfrequency Relay Load and</p> | <p>The definitions were reduced to only those utilized in the revised standard. There are now three proposed Glossary Definitions as opposed to thirteen in the original posting. Existing definitions in NERC and ERCOT were reviewed to provide clarity and consistency in the three proposed definitions.</p> | <p><b>Glossary Definition</b></p> <p><b>Frequency Measurable Event (FME):</b> Frequency Deviation used to evaluate generating unit/generating facility Primary Frequency Response performance and that meets one of the following conditions:</p> <ul style="list-style-type: none"> <li>i) a Frequency Deviation that has a pre-perturbation [the 16-second period of time before t(0)] average frequency to post-perturbation [the 34-second period of time starting 20 seconds after t(0)] average frequency absolute deviation greater than 100 mHz (the 100 mHz value may be adjusted by the BA to capture 30 to 40 events per year). See Attachment 1 for detailed criteria for this measurement.</li> </ul> <p style="text-align: center;">or</p> <ul style="list-style-type: none"> <li>ii) a change in a generating unit/generating facility, DC tie or firm load pre-perturbation average megawatt output to post-perturbation average megawatt output absolute deviation greater than 550 MW (the 550 MW value may be adjusted by the BA to capture 30 to 40 events per year). See Attachment 1 for detailed criteria for this measurement.</li> </ul> <p><b>Primary Frequency Response:</b> The immediate proportional increase or decrease in real power output provided by generating units/generating</p> |

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| <p>Emergency Interruptible Loads but not Controllable Load Resources.</p> <p><b>Generation Resource:</b> A generator that is capable of providing energy or Ancillary Service to the ERCOT System and is registered with ERCOT as a Generation Resource.</p> <p><b>Interconnection Minimum Frequency Response (IMFR):</b> The minimum frequency response limit for the Interconnection that is initially set at 420 MW/0.1 Hz.</p> <p><b>Measurable Event (ME):</b> A sudden change in interconnection frequency that will be evaluated for interconnection frequency response performance and will meet one of the following conditions:</p> <ul style="list-style-type: none"> <li>i) a change in interconnection frequency that has a pre-perturbation average frequency to post-perturbation average frequency absolute deviation greater than 100 mHz (the 100 mHz value may be adjusted by the BA to capture 30 to 40 events per year). See Attachment 1 for detailed criteria for</li> </ul> |                | <p>facilities and the natural real power dampening response provided by Load in response to system Frequency Deviations. This response is in the direction that stabilizes frequency.</p> <p><b>Governor:</b> The electronic, digital or mechanical device that implements Primary Frequency Response of generating units/generating facilities or other system elements.</p> |

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| <p>this measurement.</p> <p>or</p> <p>ii) a change in a Generation Resource, DC tie or firm load pre-perturbation average MW output to post-perturbation average MW output absolute deviation greater than 550 MW (the 550 MW value may be adjusted by the BA to capture 30 to 40 events per year). See Attachment 1 for detailed criteria for this measurement.</p> <p><b>Perturbation:</b> Any disturbance of motion, course, arrangement, or state of equilibrium that causes a sudden change in frequency on the Bulk Electric System.</p> <p><b>Post-perturbation:</b> The 34-second period of time starting 20 seconds after t(0).</p> <p><b>Pre-perturbation:</b> The 16-second period of time before t(0).</p> <p><b>Regulation Service:</b> A service that is</p> |                |   |

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| <p>used to control the power output of Resources in response to a change in system frequency so as to maintain the target system frequency within predetermined limits.</p> <p><b>Resource:</b> Facility capable of providing electrical energy or Load capable of reducing or increasing the need for electrical energy or providing Ancillary Services to the ERCOT System. This includes Generation Resources, Loads acting as Resources and Emergency Interruptible Load Service Resources.</p> <p><b>t(0):</b> It is the time of the first observable change in Interconnection frequency at the beginning of a perturbation.</p> <p><b>Underfrequency Relay Load:</b> Load that is taken off-line by an underfrequency relay when the frequency goes below a predetermined frequency value for a predetermined number of cycles.</p> |   |  |
| <p><b>1. Title:</b> Real Power Balancing Control Performance</p>   | <p>No Change</p>                                  | <p><b>1. Title:</b> Real Power Balancing Control Performance</p>   |
| <p><b>3. Purpose:</b> To maintain Interconnection steady-state frequency within defined limits by balancing real power demand and supply in real-time. This regional variance replaces the CPS2 Waiver that</p>  | <p>Changed the word “variance” to “standard”.</p> | <p><b>3. Purpose:</b> To maintain Interconnection steady-state frequency within defined limits by balancing real power demand and supply in real-time. This regional standard replaces the CPS2 Waiver that was approved for ERCOT by NERC on November 21, 2002. Specifically, this regional</p> |

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| was approved for ERCOT by NERC on November 21, 2002. Specifically, this variance replaces requirement 2 of BAL-001-0a per FERC Order 693.   |   | standard replaces requirement 2 of BAL-001-0a per FERC Order 693.  |
| <b>4. Applicability</b><br>Balancing Authorities (BA), Generator Owners (GO), Generator Operators (GOP)   | Removed Generator Operators (GOP) from the applicability and exempted existing Nuclear Generating Facilities  | <b>4. Applicability</b><br><b>4.1.</b> Balancing Authorities (BA), Generator Owners (GO)<br><b>4.2.</b> Existing facilities regulated by the U.S. Nuclear Regulatory Commission are exempt from Standard BAL-001-TRE-01. |
| <b>R1.</b> The Balancing Authority for the ERCOT Interconnection shall identify Measurable Events (as defined in this regional standard) for primary governing frequency response measurement of Generation Resources, Frequency Responsive Resources, and firm load.   | The old R1 and R2 were combined into the new R1. The report information is identified in Attachment 1. The reporting timing has been moved to Measure M1. | <b>R1.</b> The BA shall identify Frequency Measurable Events and submit a report to the Compliance Enforcement Authority for each Frequency Measurable Event identified.   |
| <b>R2.</b> Within 30 days of a Measurable Event, the Balancing Authority for the ERCOT Interconnection shall submit to the Compliance Enforcement Authority scan rate data necessary to analyze each Measurable Event identified in R1. This data shall include:<br><br>(1) Interconnection Frequency;<br>(2) Interconnection scheduled frequency used in the ACE equation; | The old R1 and R2 were combined into the new R1. The data set from R2 was moved to Attachment 1. The reporting timing has been moved to Measure M1.       | <b>R1.</b> The BA shall identify Frequency Measurable Events and submit a report to the Compliance Enforcement Authority for each Frequency Measurable Event identified.   |

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| <ul style="list-style-type: none"> <li>(3) Regulation Service deployed;</li> <li>(4) Responsive Reserve Service deployed;</li> <li>(5) Available Responsive Reserve Service (Nodal only);</li> <li>(6) Generation Resource/Frequency Responsive Resource MW value;</li> <li>(7) Control Error (Schedule CE in Zonal, Generation Resource/Frequency Responsive Resource CE in Nodal);</li> <li>(8) Generation Resource/Frequency Responsive Resource Expected Frequency Response;</li> <li>(9) Resource Regulation Service Allocation (Nodal only);</li> <li>(10) Resource Economic Base Point (Nodal only);</li> <li>(11) Resource High Operating Limit;</li> <li>(12) Resource Low Operating Limit;</li> <li>(13) Load Acting As Resource MW;</li> <li>(14) Load Acting As Resource deployed;</li> <li>(15) Resource Responsive Reserve Service Responsibility (Nodal only);</li> <li>(16) ERCOT Load;</li> <li>(17) MW value for loss of individual Generation Resource(s) or Load that triggered the Measurable Event;</li> </ul> |                |   |

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| <p>(18) Emergency Interruptible Load Service deployed;<br/>(19) Time (synchronous time stamp to the nearest second for the data above).</p>  |   |  |
| <p><b>R3.</b> The BA shall analyze frequency and frequency movements and calculate the Interconnection Minimum Frequency Response (MW/0.1Hz) by January 1 of each year.</p>  | <p>Old requirement R3 was deleted.</p>  |  |
| <p><b>R4.</b> The BA shall attain a twelve-month rolling average Interconnection Frequency Response, as measured in Attachment 2, greater than or equal to the Interconnection Minimum Frequency Response.</p>   | <p>Old requirement R4 was deleted.</p>  |  |
| <p><b>R5.</b> For each Measurable Event, the frequency response performance of each interconnected Generation Resource/Frequency Responsive Resource shall be compiled by the BA as measured in Attachment 3.</p>  | <p>This requirement was deleted as a requirement. It is an action that is a part of the BA activities to complete requirement R2.</p> |  |
| <p><b>R6.</b> The BA shall calculate the twelve-month rolling average frequency response performance of each Generation Resource/Frequency Responsive Resource and report it to the Compliance Enforcement Authority. Generation Resources less than 10 MW each, who at a single point of interconnection sum to</p> | <p>The requirement became the new R2 and the timing of reporting was included in the measures section of the standard.</p>            | <p><b>R2.</b> The BA shall calculate the 12-month rolling average Primary Frequency Response performance of each generating unit/generating facility using the Primary Frequency Response Evaluation Tool (Attachment 2). If the generating unit/generating facility has not participated in a minimum of (8) eight Frequency Measurable Events in a 12-month period, performance shall be based on a rolling eight Frequency Measurable Event average response.</p> |

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|---|---|--|---------------|---------------|------------|--------------|------------|----------------|---------|----------------|---------------|----------------------|-------|----|---------|----|------------------|----|-----------------------------------|----|-------------------------------------|----|------------------------------|----|
| <p>an aggregate greater than 10 MW, shall be treated as a single Generation Resource.</p>   |   |  |               |               |            |              |            |                |         |                |               |                      |       |    |         |    |                  |    |                                   |    |                                     |    |                              |    |
| <p><b>R7.</b> The GO shall report to ERCOT the operating range, performance level, and any parameter limiting the frequency response of each Generation Resource/Frequency Responsive Resource. See Attachment 3 for these parameters.</p>  | <p>This primarily administrative requirement was deleted per comments received during the first posting. The pertinent data has been included in the Performance Evaluation Tool in Attachment 2.</p>   |  |               |               |            |              |            |                |         |                |               |                      |       |    |         |    |                  |    |                                   |    |                                     |    |                              |    |
| <p><b>R8.</b> The GO shall ensure that combustion turbines in a combined cycle configuration have a governor droop characteristic of 4%, steam turbines have a governor droop characteristic of 5%, and that all other Generation Resources/Frequency Responsive Resources have a governor droop characteristic of 5% or less. See Attachment 3 for these characteristics.</p> <p><b>R9.</b> Each GO shall limit governor deadbands, intentional and unintentional, of turbine governors to those stated in Attachment 3.</p> | <p>The old R8 and R9 were combined and moved to the new requirement R3. The parameters were put into tables and formulas of governor response. The Governor response slope formulas in R3, 3.3, dictate that the unit does not step into Governor response.</p> | <p><b>R3.</b> Each GO shall set the Governor parameters as follows:</p> <p><b>3.1</b> Limit Governor deadbands within those listed in Table 3.1.</p> <p>Table 3.1 Governor Deadband Settings</p> <table border="1" data-bbox="1045 894 1556 1057"> <thead> <tr> <th>Governor Type</th> <th>Max. Deadband</th> </tr> </thead> <tbody> <tr> <td>Mechanical</td> <td>+/- 0.036 Hz</td> </tr> <tr> <td>Electronic</td> <td>+/- 0.01666 Hz</td> </tr> <tr> <td>Digital</td> <td>+/- 0.01666 Hz</td> </tr> </tbody> </table> <p><b>3.2</b> Ensure that Governor droop settings do not exceed those listed in Table 3.2.</p> <p>Table 3.2 Governor Droop Settings</p> <table border="1" data-bbox="1045 1252 1892 1479"> <thead> <tr> <th>Resource Type</th> <th>Max. Droop % Setting</th> </tr> </thead> <tbody> <tr> <td>Hydro</td> <td>5%</td> </tr> <tr> <td>Nuclear</td> <td>5%</td> </tr> <tr> <td>Coal and Lignite</td> <td>5%</td> </tr> <tr> <td>Combustion Turbine (Simple Cycle)</td> <td>5%</td> </tr> <tr> <td>Combustion Turbine (Combined Cycle)</td> <td>4%</td> </tr> <tr> <td>Steam Turbine (Simple Cycle)</td> <td>5%</td> </tr> </tbody> </table> | Governor Type | Max. Deadband | Mechanical | +/- 0.036 Hz | Electronic | +/- 0.01666 Hz | Digital | +/- 0.01666 Hz | Resource Type | Max. Droop % Setting | Hydro | 5% | Nuclear | 5% | Coal and Lignite | 5% | Combustion Turbine (Simple Cycle) | 5% | Combustion Turbine (Combined Cycle) | 4% | Steam Turbine (Simple Cycle) | 5% |
| Governor Type   | Max. Deadband   |  |               |               |            |              |            |                |         |                |               |                      |       |    |         |    |                  |    |                                   |    |                                     |    |                              |    |
| Mechanical  | +/- 0.036 Hz  |  |               |               |            |              |            |                |         |                |               |                      |       |    |         |    |                  |    |                                   |    |                                     |    |                              |    |
| Electronic  | +/- 0.01666 Hz  |  |               |               |            |              |            |                |         |                |               |                      |       |    |         |    |                  |    |                                   |    |                                     |    |                              |    |
| Digital   | +/- 0.01666 Hz  |  |               |               |            |              |            |                |         |                |               |                      |       |    |         |    |                  |    |                                   |    |                                     |    |                              |    |
| Resource Type   | Max. Droop % Setting  |  |               |               |            |              |            |                |         |                |               |                      |       |    |         |    |                  |    |                                   |    |                                     |    |                              |    |
| Hydro   | 5%  |  |               |               |            |              |            |                |         |                |               |                      |       |    |         |    |                  |    |                                   |    |                                     |    |                              |    |
| Nuclear   | 5%  |  |               |               |            |              |            |                |         |                |               |                      |       |    |         |    |                  |    |                                   |    |                                     |    |                              |    |
| Coal and Lignite  | 5%  |  |               |               |            |              |            |                |         |                |               |                      |       |    |         |    |                  |    |                                   |    |                                     |    |                              |    |
| Combustion Turbine (Simple Cycle)   | 5%  |  |               |               |            |              |            |                |         |                |               |                      |       |    |         |    |                  |    |                                   |    |                                     |    |                              |    |
| Combustion Turbine (Combined Cycle)   | 4%  |  |               |               |            |              |            |                |         |                |               |                      |       |    |         |    |                  |    |                                   |    |                                     |    |                              |    |
| Steam Turbine (Simple Cycle)  | 5%  |  |               |               |            |              |            |                |         |                |               |                      |       |    |         |    |                  |    |                                   |    |                                     |    |                              |    |

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|---|--|--|--------------------------------|----|--------|----|--------------|----|-------------------------------------|----|-----------------------|----|
|   |  | <table border="1" data-bbox="1045 321 1892 483"> <tr> <td>Steam Turbine (Combined Cycle)</td> <td>5%</td> </tr> <tr> <td>Diesel</td> <td>5%</td> </tr> <tr> <td>Wind Turbine</td> <td>5%</td> </tr> <tr> <td>DC Tie Providing Ancillary Services</td> <td>5%</td> </tr> <tr> <td>Renewable (Non-Hydro)</td> <td>5%</td> </tr> </table> <p data-bbox="1031 540 1982 646"><b>3.3</b> For digital and electronic Governors, once frequency deviation has exceeded the Governor deadband from 60.000 Hz, ensure that the resource Governor follows the slope derived from the formula below.</p> <p data-bbox="1031 662 1877 735">For 5% Droop:      Slope = <math>\frac{MW_{GCS}}{(3.0 \text{ Hz} - \text{Governor Deadband Hz})}</math></p> <p data-bbox="1031 800 1877 873">For 4% Droop:      Slope = <math>\frac{MW_{GCS}}{(2.4 \text{ Hz} - \text{Governor Deadband Hz})}</math></p> <p data-bbox="1031 946 1965 1019">Where: MW<sub>GCS</sub> is the maximum megawatt control range of the Governor control system.</p> | Steam Turbine (Combined Cycle) | 5% | Diesel | 5% | Wind Turbine | 5% | DC Tie Providing Ancillary Services | 5% | Renewable (Non-Hydro) | 5% |
| Steam Turbine (Combined Cycle)  | 5%   |  |                                |    |        |    |              |    |                                     |    |                       |    |
| Diesel  | 5%   |  |                                |    |        |    |              |    |                                     |    |                       |    |
| Wind Turbine  | 5%   |  |                                |    |        |    |              |    |                                     |    |                       |    |
| DC Tie Providing Ancillary Services   | 5%   |  |                                |    |        |    |              |    |                                     |    |                       |    |
| Renewable (Non-Hydro)   | 5%   |  |                                |    |        |    |              |    |                                     |    |                       |    |
| <p data-bbox="92 1040 632 1214"><b>R10.</b> Except for protection of equipment or safety, the GO and GOP will sustain its governor response to all frequency deviations that exceed the deadbands stated in Attachment 3.</p> | <p data-bbox="663 1040 993 1292">The old R10 is contained in the new R5. A minimum event participation of 8 events was added. Formulas for calculating the performance were added.</p> | <p data-bbox="1031 1040 1976 1292"><b>R5.</b> The GO shall meet a minimum 12-month rolling average sustained Primary Frequency Response performance on each generating unit/generating facility based on an eight (8) Frequency Measurable Event minimum participation. If the generating unit/generating facility has not participated in a minimum of eight Frequency Measurable Events in a 12-month period, performance shall be based on a rolling eight Frequency Measurable Event average response.</p> <p data-bbox="1171 1349 1990 1455"><b>Event Recovery Time (ERT):</b> Time at which Frequency Returns to Pre-perturbation Frequency or Scheduled Frequency, whichever is lower</p>   |                                |    |        |    |              |    |                                     |    |                       |    |

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|   |         | <p><b>Pre-perturbation Average MW:</b> Actual MW averaged from t(-16) to t(-2)</p> $MW_{pre-perturbation} = \frac{\sum_{t=-16}^{-2} MW}{8}$ <p><b>Post-perturbation Average MW:</b> Actual MW averaged from t(20) to t(52)</p> $MW_{post-perturbation} = \frac{\sum_{t=20}^{52} MW}{17}$ <p><b>MW<sub>ERT</sub> = Instantaneous MW at ERT</b><br/> <math>\Delta MW = MW_{pre-perturbation} - MW_{ERT}</math><br/> <math>\#Scans = ERT - t(0) - 2</math><br/> <math>Expected\ 60\ Hz\ MW_t = \left(\frac{t}{2}\right) \left(\frac{\Delta MW}{\#Scans}\right) + MW_{pre-perturbation}</math></p> <p><b>Initial Primary Frequency Response in P.U. (IPFR<sub>p,u</sub>)</b><br/> <math>IPFR_{prim} = \frac{(MW_{post-perturbation} - MW_{pre-perturbation})}{EPFR}</math><br/>                     If (IPFR<sub>prim</sub> &gt; 1.0) then IPFR<sub>prim</sub> = 1.0<br/>                     If (IPFR<sub>prim</sub> &lt; 0.15) then IPFR<sub>prim</sub> = 0.0 (No evaluation is required)</p> <p><b>Event Average Expected MW</b><br/> <math>MW_{EAE} = \frac{\sum_{t=-2}^{ERT} (Expected\ 60\ Hz\ MW_t + EPFR_t \times IPFR_{prim})}{\#Scans}</math></p> <p><b>Event Average Actual MW</b><br/> <math>MW_{EAA} = \frac{\sum_{t=-2}^{ERT} (MW_t)}{\#Scans}</math></p> <p><b>P. U. PFR<sub>Resource</sub></b> = <math>\frac{MW_{EAA}}{MW_{EAE}}</math></p> |

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| <p><b>R11.</b> The GO and GOP will meet a minimum twelve-month rolling average frequency response performance on each Generation Resource/Frequency Responsive Resource as stated in Attachment 3. See chart of Figure 4: Expected Resource Performance and associated spreadsheet.</p> | <p>The old R11 is contained in the new R4. A minimum event participation of 8 events was added. Formulas for calculating the performance were added. The GOP requirement was removed.</p> | <p style="text-align: center;"><math>Avg_{Period}[P.U. PFR_{Resource}] \geq 0.75</math></p> <p><b>R4.</b> The GO shall meet a minimum 12-month rolling average Primary Frequency Response performance on each generating unit/generating facility based on an eight (8) Frequency Measurable Event minimum participation. If the generating unit/generating facility has not participated in a minimum of eight Frequency Measurable Events in a 12-month period, performance shall be based on a rolling eight Frequency Measurable Event average response.</p> <p style="text-align: center;"><math>Avg_{Period}[P.U. PFR_{Resource}] \geq 0.75</math></p> <p>Where: P.U. PFR<sub>Resource</sub> is the per unit measure of the Primary Frequency Response of a Resource during identified Frequency Measurable Events.</p> <p style="text-align: center;"><math>P.U. PFR_{Resource} = \frac{Actual\ Primary\ Frequency\ Response}{Expected\ Primary\ Frequency\ Response}</math></p> <p><b>Expected Primary Frequency Response (EPFR):</b> This is calculated when the frequency deviation exceeds the deadband.</p> <p style="text-align: center;"><math>Expected\ MW\ Change = \frac{(HZ_{actual} - 60.0 + deadband)}{(60 * droop - deadband)} \times (-1) \times (Capacity)</math></p> <p><b>EPFR for Combustion Turbine</b></p> <p style="text-align: center;"><math>Expected\ MW\ Change + (HZ_{actual} - 60.0) \times 10 \times 0.00276 \times Generation\ Loss</math></p> <p><b>EPFR for Steam Turbine</b></p> <p style="text-align: center;"><math>(Expected\ MW\ Change + Stored\ Energy\ Loss + Steam\ Expansion\ Loss)</math></p> <p style="text-align: center;"><math>Stored\ Energy\ Loss = \left[ Expected\ MW\ Change \times K \times \left( \frac{Capacity}{PSIG_{Rated}} \right) \right]</math></p> |

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|  |   | <p>Where <math>K = \frac{\text{Change in Pressure } (\Delta PSIG)}{\text{Change in MW } (\Delta MW)}</math> is in the range of 0.0 → 0.</p> <p>Steam Expansion Loss = <math>\left[ \text{Expected MW Change} \times 2 \times MW_{\text{post-perturb}}</math></p> <p><b>Actual Primary Frequency Response (APFR):</b> This is the difference between Pre-perturbation Average MW and Post-perturbation Average MW.</p> <p><math>\text{Actual Primary Frequency Response} = MW_{\text{pre-perturbation}} - MW_{\text{post-perturbation}}</math></p> <p><b>Pre-perturbation Average MW:</b> Actual MW averaged from t(-16) to t(-2)</p> $MW_{\text{pre-perturbation}} = \frac{\sum_{t=-16}^{-2} MW}{8}$ <p><b>Post-perturbation Average MW:</b> Actual MW averaged from t(20) to t(52)</p> $MW_{\text{post-perturbation}} = \frac{\sum_{t=20}^{52} MW}{17}$ |
| <p><b>M1.</b> The BA shall have a procedure in place for identifying Measurable Events.</p> <p><b>M2.</b> The BA shall make available for inspection evidence that the data as specified in R2 was submitted to the Compliance Enforcement Authority for evaluation.</p> <p><b>M3.</b> The BA shall have available for inspection evidence that the analysis</p> | <p>Compliance Measures were revised to correspond to the requirements of the standard in accordance with the NERC Drafting Team guidelines.</p> | <p><b>M1.</b> The BA shall have evidence it reported each Frequency Measurable Event to the Compliance Enforcement Authority within 30 days of the FME as required in R1. The data provided to the Compliance Enforcement Authority may include but is not limited to that listed in Attachment 1.</p> <p><b>M2.</b> The BA shall have evidence it reported the rolling average Primary Frequency Response performance of each generating unit/generating facility monthly to the Compliance Enforcement Authority as required in R2.</p> <p><b>M3.</b> The GO shall have evidence that it set the Governor parameters in</p>  |

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| <p>of the IMFR was performed as specified in R3.</p> <p><b>M4.</b> The BA shall have evidence it calculated the twelve-month rolling average frequency response performance of the Interconnection of all Measurable Events.</p> <p><b>M5.</b> For each Measurable Event, the BA shall have evidence it reported the performance of each interconnected Generation Resource/Frequency Responsive Resource to the Compliance Enforcement Authority.</p> <p><b>M6.</b> For each Measurable Event, the BA shall have evidence it reported the twelve-month rolling average performance of each Generation Resource/Frequency Responsive Resource to the Compliance Enforcement Authority.</p> <p><b>M7.</b> The GOP shall have evidence it reported to the BA, each Generation Resource/Frequency Responsive Resource's governor operating range and expected frequency response performance for the full output range of each Generation Resource/Frequency Responsive Resource.</p> |         | <p>accordance with R3. Examples of evidence include but are not limited to:</p> <ul style="list-style-type: none"> <li>• Governor test reports,</li> <li>• Governor setting sheets,</li> <li>• performance monitoring reports.</li> </ul> <p><b>M3.1</b> The GO shall have evidence that it set the Governor deadbands as required in Table 3.1 in Requirement R.3.</p> <p><b>M3.2</b> The GO shall have evidence that the accepted Governor droop characteristics did not exceed the settings in Table 3.2 in Requirement R3.</p> <p><b>M3.3</b> The GO shall have evidence that when frequency deviation has exceeded the Governor deadband from 60.00 Hz the Governor follows the approved slopes derived from the prescribed formulas for 4% droop and 5% droop.</p> <p><b>M4.</b> Each GO shall have evidence that each of its generating units/generating facilities achieved a minimum performance level of 0.75 P.U. <math>PFR_{Resource}</math> per R4 and documented evidence of any Frequency Measurable Events where generating unit performance should be excluded.</p> <p><b>M5.</b> Each GO shall have evidence that each of its generating units/generating facilities sustained a minimum performance level of 0.75 P.U. <math>PFR_{Resource}</math> per R5 and documented evidence of any Frequency Measurable Events where generating unit performance should be excluded. On a single event, if M4 is <math>&lt;0.15</math> P.U. <math>PFR_{Resource}</math>, then M5 is not measured.</p> |

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| <p><b>M8.</b> The GO shall have evidence its frequency response Generation Resource/Frequency Responsive Resource’s governor droop is set in accordance with the settings in Attachment 3.</p> <p><b>M9.</b> The GO shall have evidence its frequency response Generation Resource/Frequency Responsive Resource’s governor deadband is set in accordance to the limits in Attachment 3.</p> <p><b>M10.</b> The GO and GOP shall have evidence that premature frequency response withdrawal by the Generation Resource/Frequency Responsive Resource was not visually observed.</p> <p><b>M11.</b> The GO and GOP shall have evidence that within the Measurable Event report, the twelve-month rolling average per unit frequency response performance of each Generation Resource/Frequency Responsive Resource met the minimum performance as stated in Attachment 3.</p> |   |  |
| <p><b>Compliance elements:</b> Violation Severity levels were assigned as identified in the Standard</p>   | <p>VSLs were modified and assigned per NERC Drafting Team</p> | <p><b>Compliance elements:</b><br/>Violation Severity Levels are listed in the Standard.</p> |

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|  | Guidelines.   |  |
| <b>Compliance elements:</b> Violation Risk Factors and Time Horizons were not in the first draft posting of the standard | VRFs and Time Horizons were added to each Requirement in accordance with the NERC Drafting Team Guidelines.   | <b>Compliance elements:</b> Violation Risk Factors and Time Horizons are listed with each requirement in the Standard.   |
| <b>Attachments</b>   | The attachments were revised in accordance with comments received and changes to the standard. An Attachment was added for the Performance Evaluation Tool. | <b>Attachments:</b><br>Attachment 1 includes the data submission elements for Requirement R1.<br>Attachment 2 contains the Performance Evaluation Tool for the calculation of performance in Requirements R2, R4, and R5.<br>A Frequently Asked Questions document and a Reference document (White Paper) will be provided with the posting. |